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FOREIGN TECHNOLOGY DIVISION

METHOD OF OBTAINING AN ELECTRICAL CONTACT

by

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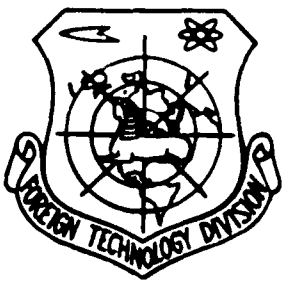

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HUMAN TRANSLATION

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METHOD OF OBTAINING AN ELECTRICAL CONTACT

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

Description of Invention for Patent 228147
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Applicant: Scientific Research Institute of Rubber and Latex Items

Method of Obtaining an Electrical Contact

There is a known method for obtaining an electrical contact between connectable parts by hardening a polymer film with ferromagnetic filler in an electrical field.

If the film is hardened in a uniform magnetic field. the induced chains are isolated from each other only with very low doses of filler, less than 2 % by volume. The chains in such a low-filled film are very thin and the specific resistance $\rho \approx 0.15$ does not ensure a sufficiently reliable electrical contact. In order to obtain smaller values of ρ it is necessary to increase the dosing of the filler. In this case the number of chains per unit of film area increases, the distance between the chains diminishes, and for dosings over 2% by volume, connectors are formed between the chains that close them among themselves, thus raising the electrical conductivity along the film. No reliable multispot electrical contact is thus obtained in the uniform field.

The proposed method differs from the known ones because the film is hardened in a nonuniform pulsing magnetic field. This creates multispot contacts and reduces their resistance.

In order to accelerate the formation of contacts, a pulsing magnetic field is used at the initial moment of contact formation.

In the nonuniform magnetic field, the number of chains is determined by the number of clusters of intensity over the cross-section of the field and is governed by the design of the magnet core. As the dosing of filler increases while the number of electrical-conducting chains remains unchanged, their thickness increases, the electrical conductivity of each chain rises, and consequently, the quality of each microcontact between the glued parts is improved. The chains close among themselves at considerably larger dosings. The critical dosing depends on the configuration of the magnetic field and on the required number of microcontacts. For example, with 900 contacts per 1 cm^2 it is 11% by volume, i.e., exceeds the critical dosing more than five times with uniform field. The magnitude ρ of the film in the direction of the chains in this case is 0.0043, i.e., lower than the corresponding minimum value ρ by two orders with uniform field while preserving the insulating properties of the film in a direction perpendicular to the chains. Consequently, with a nonuniform field we obtain a strictly defined number of reliable microcontacts that are isolated from each other. If a permanent magnetic field is applied to the nonhardened film, the quantity ρ of the film begins to diminish. The rate of reduction in ρ of liquid film is very low. In order to obtain the minimum value ρ in a static field 1200 Oe, several hours are required, consequently, while the film is in a viscous-flow state, an electrical conducting structure is not successfully formed. In a pulsing field, however, with intensity pulsation amplitude from 600 to 1200 Oe and with pulsation period 1 - 3 sec., complete formation of the structure and achievement of minimum ρ occur in 1 min. during 10 - 20 cycles of pulsation. Field pulsation is

necessary only at the initial moment, and further, during hardening, it is sufficient to apply a constant field with intensity 300 - 500 Oe, and the structure that is formed during pulsation is preserved until complete hardening of the film.

Subject of Invention

1. The method of obtaining an electrical contact between connectable parts with the help of hardening in a magnetic field of a polymer film that contains a ferromagnetic filler is distinguished by the fact that in order to create multispot contacts and reduce their resistance, the film is hardened in a nonuniform magnetic field.

2. The method in point 1 is distinguished by the fact that in order to accelerate the formation of contacts, a pulsing magnetic field is used at the initial moment of contact formation.

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